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PATENT**Remarks**

Entry of the foregoing proposed amendments and reconsideration of this application is requested. By this amendment, claims 1, and 9 have been further amended to more specifically set forth the invention. Claims 5-7, and 14-16 have been amended in light of the amendments to claims 1 and 9. Claim 12 has been cancelled herein. Claims 17-20 have been previously canceled. Claims 1-11 and 13-16 remain in the application.

35 U.S.C. 112 Rejections.

The Examiner has rejected claims 1-16 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner states that independent claims 1 and 9 were previously amended to recite the electrophoretic deposition of a product formed in situ. The Examiner states that it is not clear as to whether the recited product formed in situ is formed during the electrophoretic deposition or during the dispersion of the solute salt in the solvent.

The Examiner has rejected claims 1-16 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Examiner states that claim 1-16 are indefinite because it is not clear as to whether the recited

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product formed in situ is formed during the electrophoretic deposition or after the solute salt disposed in the solvent.

In response, the applicants have further amended independent claims 1 and 9 to state that the binder solution, comprised of the solvent and solute, when under the application of a voltage, provides for the in situ formation of a binder material on an immersed substrate as a product of the reaction of the binder solution to the applied voltage. The application of the voltage provides for the electrophoretic deposition of the binder material to the immersed substrate, thereby forming a layer of binder material on the immersed substrate. The recited "product", being the binder material, is formed as a result of the application of the voltage to the binder solvent and solute. The product is formed in situ as described on page 8, lines 14-18. The applicant asserts that it is stated as an example that magnesium nitrate is provided (as the dissolved metal ion) in the binder solution, and as a result of the application of the voltage to an immersed substrate in the binder solution, magnesium hydroxide (the binder material formed as a product in situ of the binder solution and the application of the voltage) is formed on the surface of the immersed substrate by electrophoretic deposition. It is believed that the amendments to claims 1 and 9 fully clarify the formation of the binder material in situ, and the electrophoretic deposition of the binder material to the surface of the immersed substrate. No new matter has been added to the amendment, and therefore the applicant additionally asserts that a new search is not justified prior to the entrance of these amendments into the record. The applicant believes that the amendments to claim 1 and 9 place the claims in a condition for allowance. Claim 12 has been

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canceled in light of the amendments to claim 9. In that claims 2-8, 10, 11, and 13-16 depend therefrom claims 1 and 9, respectively, it is believed that these claims are also in a condition for allowance in that they must contain each and every element of the claim from which they depend. Notice to that effect is respectfully requested.

The applicant is further making a minor amendment to claim 3 to correct dependency.

35 U.S.C. 102 Rejections**35 U.S.C. 103 Rejections**

The Examiner has rejected claims 1-4 under 35 U.S.C. 102(e) as being clearly anticipated by Russ, U.S. Patent No. 6,462,467, hereinafter referred to as Russ, for reasons and of record and further of column 5, lines 32-35.

The Examiner has rejected claims 5-16 under 35 U.S.C. 103(a) as being unpatentable over Russ, in view of Choi, et al., U.S. Patent NO. 6,617,497, hereinafter referred to as Choi, for reasons of record.

The applicants respectfully disagree with the 35 U.S.C. §102(e) and 35 U.S.C. §103(a) rejections in light of the amendments to independent claims 1 and 9 as presented herein. With respect to the 35 U.S.C. §102(e) rejection, the applicants assert that Russ fails to disclose the applicants inventive method as now claimed.

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More particularly, the applicants assert that Russ discloses and claims the use of a layer of electron emitting material bonded to the conductive material 14. As stated in column 3, lines 29-53 of Russ, the electron emitting material, deposited by electrophoretic deposition, is comprised of electron emitting particles that are separated from each other by insulating particles 24. The disclosure states that the presence of the insulating particles 24 improves the properties of field emission cathode 10. The disclosure of Russ fails to further describe the process of electrophoretic deposition of the emitting particles on the surface of the resistive layer.

In contrast, the applicants have amended the claims to further clarify that the solution in which the applicants immerse the substrate, having the layer of binder material formed thereon, is a colloidal solution that consists of electron emitting structures in an alcohol. There is no other material present, such as the insulative materials provided by Russ or a binding material as is typically present. The applicants' inventive method provides for a stable colloidal suspension in which no other binder material is present. In a typical carbon nanotube (CNT) process using electrophoretic deposition, there is a binder material present in the suspension bath to act as the "glue" for the electron emitting particles. The applicants have found that the inclusion of a binder material causes the breakdown or the phase separation of the solution. Accordingly, the applicants solution containing the electron emitting structures, contains only electron emitting structures suspended in an alcohol, typically isopropyl alcohol.

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The makeup of this colloidal solution, in combination with the lack of resistive layer described by Russ, differentiates the applicants' claimed invention over the disclosure of Russ. Accordingly, the applicants assert that their inventive method is not disclosed by Russ in that Russ fails to disclose or claim a suspension bath which consists of a colloidal solution of alcohol and a plurality of emitting structures. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The applicants assert that their claim for the suspension bath includes closed language and thus does not contain any additional binding material or insulative materials such as that disclosed in Russ and methods typically used in the art.

Accordingly, applicants do not believe that the claimed invention is anticipated by Russ in light of the amendments to the claims presented herein. To anticipate a claim for a patent, a single prior source must contain all its essential elements. Each limitation of a claim must be found in a single reference, practice, or device. This exclusion of a claimed element from a prior art reference is enough to negate anticipation by this reference.

Accordingly, the applicants believe that claim is patentable over Russ. In that the independent claim 1 includes the requirement for the inclusion of a suspension bath consisting of a colloidal solution of alcohol and a plurality of emitting structures, dependent claims 2-4, depending therefrom, respectively, also include this

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requirement and are therefore not anticipated by the cited reference Russ. Therefore, applicants believe that claims 1-4 are now in condition for allowance.

In light of the above arguments, the applicants believe the 35 U.S.C. 102(e) rejection has been overcome. Accordingly, applicants believe claims 1-4 are now in a condition for allowance. No new matter has been added to the amendment, and therefore the applicant additionally asserts that a new search is not justified prior to the entrance of these amendments into the record. Notice to that effect is respectfully requested.

With respect to the 35 U.S.C. 103(a) rejection, the applicants assert that claims 5-8 depend from claim 1 and claims 10-16 depend from claim 9, which has been amended to include a suspension bath consisting of a colloidal solution of an alcohol and a plurality of carbon nanotubes. It is believed that this amendment to claim 9 places it in a condition for allowance as previously stated with regard to the rejection of claim 1. The applicants assert that further modification of the teaching of Russ with the teachings of Choi, also fails to make the applicants device obvious. If the emitting structure of Russ, read in light of Choi, were carbon nanotubes, the method would still fail to provide for the inclusion of a colloidal solution that consists of the emitting structure and alcohol. Russ requires the separation of the emitting structures with an insulative material as previously described with regard to the 35 U.S.C. 102 rejection.

Claim 9 has been amended herein to state the use of a suspension bath consisting of a colloidal solution of an alcohol and a plurality of carbon nanotubes,

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as previously argued. Accordingly, the applicant believes that claim 9 is now in a condition for allowance over the teaching of Russ, when viewed in light of Choi. The applicants assert that dependent claims 10, 11, and 13-17 must each contain this element in that they depend from claim 9, and are therefore also in a condition for allowance. Claim 12 has been cancelled herein. No new matter has been added to the amendment, and therefore the applicant additionally asserts that a new search is not justified prior to the entrance of these amendments into the record.

No amendment made herein was related to the statutory requirements of patentability unless expressly states; rather any amendment not so identified may be considered as directed *inter alia* to clarification of the structure and/or function of the invention and Applicants' best mode for practicing the same. Additionally, no amendment made herein was presented for the purpose of narrowing the scope of any claim, unless Applicant has argued that such amendment was made to distinguish over a particular reference or combination of references. Furthermore, no election to pursue a particular line of argument was made herein at the expense of precluding or otherwise impeding Applicants from raising alternative lines of argument later during prosecution. Applicants' failure to affirmatively raise specific arguments is not intended to be construed as an admission to any particular point raised by the Examiner.

The Applicant believes that the subject application, as amended, is in condition for allowance. Such action is earnestly solicited by the Applicant. In the event that the Examiner deems the present application non-allowable, it is

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requested that the Examiner telephone the Applicant's attorney or agent at the number indicated below so that the prosecution of the present case may be advanced by the clarification of any continuing rejection.

SUMMARY: Reconsideration is respectfully requested. In view of the foregoing amendments and remarks it is believed that the application, including claims 1-11, and 13-16, is now in condition for allowance. Notice to that effect is respectfully requested.

Authorization is hereby given to charge any fees necessitated by actions taken herein, including any extension of time fees, to Deposit Account 502117.

Respectfully submitted,



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